

32692

Customer Number

Patent
Case No.: 59419US002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: SCHERER, RICHARD J.

Application No.: 10/788684

Confirmation No.: 7027

Filed: February 27, 2004

Title: CONNECTOR APPARATUS

REPLY BRIEF UNDER 37 CFR § 41.41

Board of Patent Appeals and Interference
US Patent and Trademark Office
PO Box 1450
Alexandria, Virginia 22313-1450

Dear Commissioner:

This reply is being filed in response to the Examiner's Answer mailed on June 25, 2007.

Appellants request the opportunity for a personal appearance before the Board of Appeals to argue the issues of this appeal. The fee for the personal appearance will be timely paid upon receipt of the Examiner's Answer.

Fees

It is believed that no fee is due; however, in the event a fee is required, please charge the fee to Deposit Account No. 13-3723.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-16 stand rejected under 35 USC § 103(a) as purportedly unpatentable over Ramey et al. (USPN 6,146,202).

ARGUMENT

Claims 1-16 stand rejected under 35 USC § 103(a) as being unpatentable over Ramey et al. (U.S. 6,146,202)

The Examiner's Answer states in part:

As per claim 1, Ramey discloses in figs. 1 and 15 an electrical header connector 400 comprising: a header body 402 having an internal surface 422 and an external surface 424, the header body including a plurality of first openings 416 and a plurality of second openings 418 extending from the internal surface to the external surface; and a plurality of shield blades 406 configured for insertion into the plurality of second openings 418, each of the plurality of shield blades having at a first end 462 thereof a generally right angle shielding portion 428 configured to be disposed adjacent to a corresponding one of the pluralities of signal pins 404. Ramey does not explicitly disclose that the first ends 462 of the plurality of shield blades 406 are substantially coplanar with the internal surface 422 of the header body. Ramey does disclose in fig. 15 that the first ends 462 extend from the external surface 424 through throat portions 440,442 to the internal surface 422. **Thus, it is clear and known to one skilled artisan that the first ends 462 may be positioned a distance above or below the plane of internal surface 422; the distance above or below the plane of internal surface 422 is depending on the height of the first ends 462 and the thickness of the header body 402. Therefore, it is well known and well established to one skilled artisan that the first ends 462 of the plurality of shield blades are substantially coplanar with the internal surface of the header body 402. In any event, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to ensure the distance extending not to far out from the internal surface 422 and extending far enough to provide an interference and cross talk shield or to ensure the first ends 462 extending through the external surface 424 to the closer of the internal surface 422 so that the right angle shielding portion 428 is securely placed in the second openings 418.**

As per claims 2-6, Ramey discloses a plurality of signal pins 404 configured for insertion into the plurality of first openings 416 to form an array of pin contacts 426 extending from the internal surface 422 of the header body; wherein the first and second openings 416, 418 are arranged in the header body such that the generally right angle shielding portions 428 of the plurality of shield blades 406 substantially surround the plurality of signal pins 404 to form a coaxial shield around each of the plurality of signal pins; wherein the plurality of signal pins and the plurality of shield blades are retained in the header body by press-fit; wherein the generally right angle shielding portion of each of the plurality of shield blades includes first and second leg portions 430,432 and wherein each of the plurality of second openings 418 in the header body has a generally right angle shape for receiving the generally right angle shielding portion 428 of a shield blade (figs. 15, 15a, 16, and col. 12, line 45 to col. 13, line 45).

As per claim 7, Ramey discloses that each of the plurality of generally right angle second openings 418 includes first and second narrowed throat portions 440,442 dimensioned to engage the first and second leg portions 430,432 of the generally right angle shielding portion 428 of a shield blade to hold the shield blade in place (fig. 16, col. 13, lines 19-33).

As per claims 8-9, Ramey discloses that each of the plurality of generally right angle second openings 418 in the header body includes a central portion 434 coupled to the first and second end portions 436,438 by the first and second narrowed throat portions 440,442; the central portion and the first and second end portions of each of the plurality of generally right angle second openings are shaped to provide an air gap 444 surrounding the generally right angle shielding portion of a shield blade (fig. 16, col. 13, lines 19-37).

As per claims 10-12, Ramey discloses that each of the plurality of shield blades 406 has a second end 464 thereof extending beyond the external surface of the header body, the second end configured for engagement with a printed circuit board 34; wherein the plurality of shield blades 406 are formed in a continuous strip of material; wherein the continuous strip of material forming the plurality of shield blades further comprises at least one tail 448 configured for engagement with a printed circuit board 34. (figs. 15, 15a, 16, and col. 12, line 45 to col. 13, line 65).

As per claim 13, Ramey discloses the invention substantially as claimed except for one tail for every two shield blades. It would have been obvious to one of ordinary skill in the art to have one tail for every two shield blades in order to save material.

As per claims 14-16, Ramey discloses that the continuous strip of the shield blades comprises a plurality of tails spaced along the continuous strip of material forming the plurality of shield blades; wherein the plurality of tails are electrically connected to a common ground (ground trace in pcb 34); wherein at least a portion of the plurality of shield blades are formed in a continuous strip of material (figs. 15, 15a, 16, and col. 12, line 45 to col. 13, line 65).

Applicants disagree with the Examiner's interpretation of the teachings of Ramey, in particular the language above in bold. The Examiner has pointed to nothing in Ramey that would provide a motivation for making the first ends of the shield blades substantially coplanar with the internal surface of the header. As Applicants have previously pointed out, Ramey teaches elongated first ends 462 of shield blades 406. See col. 13, lines 6-18 and Fig. 15. Ramey further teaches that upon insertion of the socket connector 100 into header connector 400, shield blades 406 of the header connector 400 contact corresponding shield fingers 274 of socket connector 100. See col. 15, lines 61-64. As can be seen from Figs. 12, 22, and 23, when the socket connector 100 and header connector 400 are mated, shield blades 406 extend across insulative housing 120 of front cap 102 to contact shield fingers 274. To accomplish this contact the first ends 462 of shield blades 406 must extend significantly beyond the internal surface of the header. Furthermore, Ramey specifically teaches away from shield blades that are substantially coplanar with the internal surface of the header body. Ramey states at col. 13, lines 9-11, "Each shield blade 406 includes a first end 462 extending above the front wall 410 of the header connector 400 adjacent to the first end 452 of signal pin 404, . . ." (emphasis added) See *generally* Fig. 15.

The Examiner states that it would have been obvious to ensure the distance extending not to far out from the internal surface 422 and extending far enough to provide an interference and cross

talk shield. However, the Examiner provides no reason why one of skill in the art would be motivated to ensure that the shield blade does not extend too far out from the internal surface 422 when the elongated shield blades of Ramey provide an interference and cross talk shield, plus a ground path between the socket and header connectors.

The Examiner additionally states that it is known to one of skill in the art that the first ends 462 may be positioned a distance above or below the plane of internal surface 422; the distance above or below the plane of internal surface 422 is depending on the height of the first ends 462 and the thickness of header body 402. However, the Examiner provides no reason why one of skill in the art would be motivated to alter the connector of Ramey to provide a connector in which the first ends of the shield blades are substantially coplanar with the internal surface of the header body 422.

CONCLUSION

For the foregoing reasons, appellants respectfully submit that the Examiner has erred in rejecting this application. Please reverse the Examiner on all counts.

Respectfully submitted,

August 27, 2007
Date

By: Melanie Gover
Melanie G. Gover, Reg. No.: 41,793
Telephone No.: 512-984-4308

Office of Intellectual Property Counsel
3M Innovative Properties Company
Facsimile No.: 651-736-3833

CLAIMS APPENDIX

1. (Previously Presented) An electrical header connector comprising:
a header body having an internal surface and an external surface, the header body including a plurality of first openings and a plurality of second openings extending from the internal surface to the external surface; and
a plurality of shield blades configured for insertion into the plurality of second openings, each of the plurality of shield blades having at a first end thereof a generally right angle shielding portion configured to be disposed adjacent to a corresponding one of the plurality of signal pins, wherein the first ends of the plurality of shield blades are substantially coplanar with the internal surface of the header.
2. (Previously Presented) The header connector of claim 1, further comprising:
a plurality of signal pins configured for insertion into the plurality of first openings to form an array of pin contacts extending from the internal surface of the header body.
3. (Original) The header connector of claim 2, wherein the first and second openings are arranged in the header body such that the generally right angle shielding portions of the plurality of shield blades substantially surround the plurality of signal pins to form a coaxial shield around each of the plurality of signal pins.
4. (Original) The header connector of claim 2, wherein the plurality of signal pins and the plurality of shield blades are retained in the header body by press-fit.
5. (Original) The header connector of claim 1, wherein the first and second openings are arranged in the header body such that the generally right angle shielding portions of the plurality of shield blades substantially surround the plurality of first openings to form a coaxial shield around each of the plurality of signal pins.
6. (Original) The header connector of claim 1, wherein the generally right angle shielding portion of each of the plurality of shield blades includes first and second leg portions, and

wherein each of the plurality of second openings in the header body has a generally right angle shape for receiving the generally right angle shielding portion of a shield blade.

7. (Original) The header connector of claim 6, wherein each of the plurality of generally right angle second openings includes first and second narrowed throat portions dimensioned to engage the first and second leg portions of the generally right angle shielding portion of a shield blade to hold the shield blade in place.
8. (Original) The header connector of claim 7, wherein each of the plurality of generally right angle second openings in the header body includes a central portion coupled to the first and second end portions by the first and second narrowed throat portions.
9. (Original) The header connector of claim 8, wherein the central portion and the first and second end portions of each of the plurality of generally right angle second openings are shaped to provide an air gap surrounding the generally right angle shielding portion of a shield blade.
10. (Original) The header connector of claim 1, wherein each of the plurality of shield blades has a second end thereof extending beyond the external surface of the header body, the second end configured for engagement with a printed circuit board.
11. (Original) The header connector of claim 1, wherein the plurality of shield blades are formed in a continuous strip of material.
12. (Original) The header connector of claim 11, wherein the continuous strip of material forming the plurality of shield blades further comprises at least one tail configured for engagement with a printed circuit board.
13. (Previously Presented) The header connector of claim 12, wherein the continuous strip comprises one tail for every two shield blades.
14. (Previously Presented) The header connector of claim 12, wherein the continuous strip comprises a plurality of tails spaced along the continuous strip of material forming the plurality of shield blades.

15. (Original) The header connector of claim 14, wherein the plurality of tails are electrically connected to a common ground.
16. (Original) The header connector of claim 1, wherein at least a portion of the plurality of shield blades are formed in a continuous strip of material.